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Listing of Claims:

1. (Previously presented) A method for modeling borehole effects of an induction tool having a plurality of arrays that include at least one transverse array, the method comprising:

selecting a formation-borehole model having a set of parameters, wherein the set of parameters comprises a direction of tool eccentering;

determining initial values for the set of parameters; computing expected responses for a selected set of arrays from the plurality of arrays of the induction tool, wherein the computing is based on the formation-borehole model;

comparing the expected responses with actual responses for the selected set of arrays;

adjusting values of the set of parameters, if a difference between the expected responses and the actual responses is not less than a predetermined criterion;

repeating the computing, the comparing, and the adjusting, until the difference between the expected responses and the actual responses is less than the predetermined criterion;

determining the borehole effects from final values of the set of parameters.

2. (Original) The method of claim 1, wherein the set of parameters further comprises a vertical formation conductivity and a horizontal formation conductivity.

3. (Original) The method of claim 2, wherein the set of parameter further comprises mud resistivity, a borehole diameter, and a tool standoff.

4. (Original) The method of claim 1, wherein the initial values for the set of parameters comprise at least one value determined from borehole logging data.

5. (Original) The method of claim 4, wherein the at least one value is selected from mud resistivity and a borehole diameter.

6. (Original) The method of claim 5, wherein the mud resistivity is determined by a mud resistivity sensor and the borehole diameter is determined by a caliper.

7. (Original) The method of claim 1, wherein the comparing comprises using a penalty function.

8. (Original) The method of claim 7, wherein the penalty function is based on squares of differences between the expected responses and the actual responses.

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9.   (Original)   The method of claim 1, further comprising correcting measurements of the plurality of arrays using the determined borehole effects.

10.   (Original)   The method of claim 1, wherein the induction tool comprises at least one triaxial array.

11.   (Original)   The method of claim 10, wherein the initial values for the set of parameters comprises the direction of tool eccentering determined from data obtained with the at least one triaxial array.

12.   (Original)   The method of claim 11, wherein the direction of eccentering is determined from off-diagonal elements of an apparent conductivity matrix.

13.   (Original)   The method of claim 12, wherein the apparent conductivity matrix is rotated to produce a simplified matrix of apparent conductivities.

14.   (Original)   The method of claim 13, wherein borehole corrections are applied to the simplified matrix of apparent conductivities to produce a corrected matrix of apparent conductivities.

15.   (Original)   The method of claim 14, further comprising rotating the corrected matrix of apparent conductivities to correspond to an original tool orientation.

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16.   (Original)   A system for borehole effects of an induction tool having a plurality of arrays that include at least one transverse array, the system comprising a processor and a memory, wherein the memory stores a program having instructions for:

selecting a formation-borehole model having a set of parameters, wherein the set of parameters comprises a direction of tool eccentering;

determining initial values for the set of parameters; computing expected responses for a selected set of arrays from the plurality of arrays of the induction tool, wherein the computing is based on the formation-borehole model;

comparing the expected responses with actual responses for the selected set of arrays;

adjusting values of the set of parameters, if a difference between the expected responses and the actual responses is no less than a predetermined criterion;

repeating the computing, the comparing, and the adjusting, until the difference between the expected responses and the actual responses is less than the predetermined criterion;

determining the borehole effects from final values of the set of parameters.

17.   (Previously presented)   The system of claim 16, wherein the set of parameters further comprises a vertical formation conductivity and a horizontal formation conductivity.

18.   (Previously presented)   The system of claim 17, wherein the set of parameter further comprises mud resistivity, a borehole diameter, and a tool standoff.

19.   (Previously presented)   The method of claim 16, wherein the comparing comprises using a penalty function.

20.   (Previously presented)   The method of claim 19, wherein the penalty function is based on squares of differences between the expected responses and the actual responses.

21.   (Previously presented)   The method of claim 16, wherein the program further comprises instructions for correcting measurements of the plurality of arrays using the determined borehole effects.